1179-76 The National Cholesterol Education Program Guidelines Underestimate Disease Risk in Young Adults

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Background: Recent trials suggest that there has been improvement in secondary prevention and that age-adjusted mortality rates following myocardial infarction (MI) have declined. However, preventing coronary heart disease (CHD) in the first place remains a challenge. The recently published National Cholesterol Education Program (NCEP) guidelines (Adult Treatment Panel III) result in identifying more patients for treatment. Its applicability to specific populations at risk is not known. We sought to determine how well this model determines risk status for young adults.
Objective: To evaluate the ability of the new guidelines to classify risk status in men ≤ age 55 years and women ≤ age 65 years.
Method: A retrospective chart review of cardiovascular risk factors in a population of young adults admitted with MI. Patients with a previous history of CHD or CHD equivalent were excluded. Risks of ten-year probability for a CHD event were calculated. Patients meeting criteria for drug therapy were stratified by LDL cholesterol levels.
Results: In a 3-year period, 284 patients were admitted with MI, 222 of whom met criteria by not having a previous history of CAD or equivalent. The mean age was 50 years; 75% were male. The mean LDL cholesterol level was 126 mg/dL. Of this population, 50% had 0-1 risk factor, of whom only 8% had LDL >160 and would have met criteria for treatment. Among patients with 2 risk factors and a 10-year risk <10% (61 patients), only 2% met criteria for treatment. There were 29 patients with 2 risk factors and a risk of 10-20%, of whom 45% met criteria to be treated. Of the patients with > 20% risk (n = 21), 91% would have been treated. Overall, per the new guidelines, as many as 74% of young adults presenting with an MI would not have met criteria for drug management if seen by their physician at some time prior to their event.
Conclusion: The new guidelines are an improvement in identifying more candidates for primary prevention. However, many young adults at risk for an imminent MI are not identified. The reason is that a significant number of young adults presenting with MI have few risk factors and do not have high LDL cholesterol levels. Primary prevention must focus on reduction of all identifiable risk factors.

1179-77 The Metabolic Score Predicts Subclinical Atherosclerosis Independent of Fasting Serum LDL: Evidence Supporting Inclusion of the Metabolic Syndrome as a Component Within the NCEP ATP III Guidelines

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Background: The metabolic syndrome is a constellation of modifiable lipid and non-lipid risk factors promoted by NCEP ATP III for the identification of subjects at increased risk for future cardiovascular events. We compared the prevalence of subclinical atherosclerosis in subjects with and without the metabolic syndrome to determine its contribution to the cardiovascular risk assessment in asymptomatic screening populations.
Methods: We studied 999 consecutive, asymptomatic, healthy subjects, ages 40-45 yrs, enrolled in a prospective cardiovascular risk assessment study. The "metabolic score" was calculated as the sum of the five following risk factors (present or absent; defined per NCEP III): HTN, abdominal obesity, fasting serum glucose, elevated total cholesterol and depressed HDL-C. The metabolic syndrome was defined as a metabolic score ≥3. Coronary artery calcification (CAC) on EBCT was used to measure subclinical atherosclerosis.
Results: The prevalence of the metabolic syndrome was 8.9% (89/999). Subjects with the metabolic syndrome had significantly higher fasting insulin levels and lower physical activity indices. The prevalence of a positive CAC score was 17.2% (172/999) and subjects with the metabolic syndrome were more likely to have a positive CAC score 24.7% (22/89) compared to those without 16.5% (150/910, p<0.05.) Furthermore, the presence of a positive CAC score significantly varied across the range of metabolic scores (from 14.1% for MS = 0, to 36.5% with MS ≥4; p=0.009). After controlling for serum LDL-C, the metabolic score remained a significant predictor of subclinical atherosclerosis.
Conclusion: Calculation of the "metabolic score" is a simple, readily attainable clinical measurement that directly and independently relates to the likelihood of premature subclinical calcified atherosclerosis in an asymptomatic screening population. Treatment of the metabolic syndrome through weight loss, promotion of physical activity and treatment of individual risk factors has the potential to retard progression of the atherosclerotic burden beyond the benefits of LDL reduction alone.

1179-78 Adult High Density Liporotein Cholesterol Has Decreased Ten Percent in the Past 25 Years: The Princeton Follow-Up Study

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Background: The major anti-atherogenic factor, HDL-C, correlates positively with saturated fat intake and negatively with both smoking and obesity. During the past 25 years public health efforts and clinical practice have promoted cardiovascular risk modification, addressing especially diet and smoking.
Methods: To examine intergenerational changes in these factors and possible changes in HDL-C in black and white adults, we compared parent participants from the Lipid Research Clinics (LRC) Princeton Prevalence Program, 1973-76, with LRC children-participants, currently being retested as part of the Princeton LRC Follow-up Study. Comparisons were restricted to 27-47 year-old participants in each generation (G) for comparability, including 760 G1 and 571 G2. Diet was assessed using 24-hour recall in the LRC study and Block Quantified Food Frequency in the Follow-up study. Smoking was determined by questionnaire, and obesity by the body mass index (BMI = kg/m^2). Mean factor levels and percentages (%) of participants above established cutpoints were compared using pooled t-tests and likelihood ratio chi square analyses.
Results: The prevalence of smoking was significantly lower in G2 than in G1, overall (26 v 42%) and in each sex-race group. Mean % of calories from fat (37 v 40%) and saturated fat (11 v 15%) were significantly lower in G2 than in G1, overall and in whites. Mean BMI and the % of participants > 30 BMI were significantly greater in G2, overall and in each sex race group. The effects of these, and other changes, is lower mean HDL-C levels in G2 than G1 members, overall (45.8 vs 50.8 mg/dl) and in each subgroup. In addition, the percentage of parents with clinically defined low HDL-C (< 35 mg/dl) was significantly higher overall and in each subgroup.
Conclusions: Despite the marked decreases in the prevalence of smoking, which should lead to increased HDL-C, decreases in saturated fat intake (which is beneficial for LDL-C) and the increase in obesity has contributed to markedly lower HDL-C in black and white young and middle-aged adults. More effective approaches to weight management are needed.

1179-79 Secondary Prevention Is Inferior in Patients With Peripheral Arterial Disease

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Background: Coronary (CAD) and peripheral (PAD) atherosclerotic disease share the same risk factors and, presumably have similar secondary prevention strategies. We hypothesized that patients with PAD are less likely to be adequately managed for secondary prevention.
Methods and Results: Cardiovascular risk factors, use of lipid-lowering therapy (LLT) and aspirin were compared in CAD and PAD patients referred for their first interventional procedure at a single tertiary care center. We performed a retrospective chart review of a random sample of patients undergoing either CABG (n=180) or lower extremity revascularization (n=180) between 1994 and 1999. All abstracted clinical information was available prior to the patient's first surgical intervention. Patients in both groups were of comparable age (67 ± 10 yrs) and ethnicity (91% White), and had similar low use of LLT (CAD=26%, PAD=20%). Compared to CAD subjects, the PAD group had greater frequency of women (OR=1.7; 95% CI: 1.1-2.7; p=0.02) and current smokers (OR=3.8; 95% CI: 2.1-6.9; p=0.001). PAD subjects had lower use of aspirin (OR=0.4; 95% CI: 0.3-0.7; p=0.001) and in only 6% of the sample lipid abnormalities were evaluated, compared to 71% in the CABG group. Both aspirin use (OR=2.4; 95% CI: 1.2-4.6; p=0.03) and LLT (OR=4.5; 95% CI: 1.2-16.4; p=0.02) were strongly associated with a previous history of CAD in subjects with PAD.
Conclusion: PAD patients are less likely to have a lipid profile performed, to succeed with smoking cessation initiatives, and to be on aspirin. These findings may reflect the lack of standardized clinical management guidelines, and lower awareness regarding secondary prevention of PAD.

1179-80 Considering Lipids as a Vital Sign: A New Model for the Rapid and Effective Delivery of Coronary Prevention Management Using Point of Care Testing

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Background: This abstract describes the organization and outcomes of a system for lipid management based on point of care cholesterol testing. Point of care testing, as utilized in our model, permits lipid values to be immediately available for evaluation at the time of each clinical encounter- regardless of the reason for consultation. Lipid results are recorded on the intake form alongside the blood pressure and pulse, and in so doing, are considered a "vital sign" for coronary prevention.
Methods: All new patients referred to the outpatient cardiology clinic are encouraged to have lipid measurements performed at the time of their first visit. Cholesterol testing is performed with a capillary blood sample in 5 minutes using a bench top analyzer previously validated for accuracy and precision. If a lipid abnormality is identified, patients are prescribed lifestyle and diet recommendations, which are reinforced by the nurse at the time of discharge. Patients are then instructed to return to the cardiology clinic point of care lab in 6-12 weeks, where repeat lipids are run and management directed by a rotating team of highly skilled and motivated nurses. Management is based on NCEP guidelines. Return visits for those on lipid lowering therapy are arranged at intervals no greater than 4 months.
Results: In the 5 years since the point of care model was adopted, in excess of 12,000 lipid measurements have been performed. Among patients followed over the last 2 years, 88% were at or within 10% of their NCEP recommended goal for LDL cholesterol. Most importantly, among those patients at their NCEP goal in 2000, 93% remained at or within 10% of their goal in 2001. The time required for return visits, including blood drawing, lipid analysis and counseling, was 17 ± 1 (SE) minutes (n=100).
Conclusion: A new process for lipid management is described featuring a collaborative nurse/physician team utilizing point of care lipid testing. This model has the potential for broad applicability and has been demonstrated to deliver preventive care rapidly, effectively, and with sustained results.